

Work Order ID 141237

February 02, 2016 11:54:38 AM

141237

To ship March 16th or so. Page 1

Item ID: D209-669-014 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: AH-1F/P/S Skidtube RH with Standard Wearplates
 Start Date: 2/2/2016 Start Qty: 1.00 *1* Cust Item ID:
 Required Date: 3/14/2016 Req'd Qty: 1.00 *1* Customer:
 Reference:

Approvals: Process Plan: SA Date: 016020 Tooling: Date: Run Start *NR1*
 QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D209-669-014	Rev B (DEO) <u>16.02.05</u>								
DSI 9450	Rev A								

100 Document Control 0.00
 100 DOCUMENT CONTROL
 DC Memo 0.00
 Doc.Control -USB or Paperwork Photocopy bluefile & type labels per PPP D209-669-014 CHG004

DAS
6
9-89

DAS
31
9-89

16/03/24

110 Pick Kit 0.00
 110
 Packaging Memo 0.00
 Packaging

MAR 07 2016

DAS
6
9-89
27
9/89

B141663

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause		FAULT CATEGORY					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____					
Misidentified ☐	Past Due ☐						

Work Order ID 141237

141237

Page 2

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Item ID: D209-669-014 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: AH-1F/P/S Skidtube RH with Standard Wearplates
 Start Date: 2/2/2016 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 3/14/2016 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC4- 100% Inspect kits for completeness	0.00				1	2	16/03/24	
120									
QC	Memo	0.00							
Quality Control									
130	Packaging	0.00							
130									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPPD209-669-014 Location:FG070								
			Sold						
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.00							
Quality Control									

DAS
27
9-89

MAR 24 2016

MCS

MAR 29 2016

MCS

MAR 29 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Picklist Print

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Page 1

Work Order ID: 141237

141237

Parent Item: D209-669-014

D209-669-014

Parent Item Name: AH-1F/P/S Skidtube RH with Standard Wearplates

Start Date: 2/2/2016

Required Date: 3/14/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: New IPP 08.02.13 new issue EC, verified by:DD
IPP Rev:B 08-05-20 chg QTY of D2570 DD verified by: IPP
REV:C 12.06.07 ECN 12-599 DD VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D209-669-043

Manufactured No

110

Each

4.0000

1

1

D209-669-043

AH-1F/P/S Replacement Skidtube with Standard Wearplates, Fits LH or RH

**

B14163

IMP

Location

Loc Qty

Loc Code

Mezz

4

39205

2

39206

2

D2917-2

Manufactured No

110

Each

2.0000

2

2

D2917-2

Saddle RH

**

DAS
31
9-89

Location

Loc Qty

Loc Code

st387

2

107447

1

94897

1

D2918-2

Manufactured No

110

Each

1.0000

2

2

D2918-2

Saddle RH

**

DAS
31
9-89

Location

Loc Qty

Loc Code

st387

1

107448

1

MAR 15 2016

DAS
6 27
9-89 9-89

DAS
6 27
9-89 9-89

141631

MAR 15 2016

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Page 2

Work Order ID: 141237

141237

Parent Item: D209-669-014

D209-669-014

Parent Item Name: AH-1F/P/S Skidtube RH with Standard Wearplates

Start Date: 2/2/2016

Required Date: 3/14/2016

Start Qty: 1.00

Required Qty: 1.00

AN4-51A

Purchased

No

110

Each

157.0000

8

8

AN4-51A

Bolt

DAS
31
9-89

Location

Loc Qty

Loc Code

FG	5	
122993	5	
over004	50	
m133769	50	
ST340	102	
m132536	1	
m133077	1	
m133316	100	

DAS
6
9-89

D2570

Manufactured

No

110

Each

459.0000

24

24

D2570

Bushing

DAS
31
9-89

Location

Loc Qty

Loc Code

FG	12	
88781	12	
FP001	89	
133432	3	
137172	86	
ST008	57	
136511	9	
138272	48	
ST012a	301	
138273	200	
138946	101	

DAS
6
9-89

MAR 07 2016

Picklist Print

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Work Order ID: 141237

141237

Parent Item: D209-669-014

D209-669-014

Parent Item Name: AH-1F/P/S Skidtube RH with Standard Wearplates

Start Date: 2/2/2016

Required Date: 3/14/2016

Start Qty: 1.00

Required Qty: 1.00

MS21042L4

Purchased

No

110

Each

3,212.000

24

24

MS21042L 4

Locknut

DAS

6

9-89

DAS

31

9-89

Location

Loc Qty

Loc Code

FP001

41

m133363

41

GA

26

m127813

26

ST007

1500

m134055

1500

ST303

1548

m133769

1548

ST305

97

m130922

97

AN5-36A

Purchased

No

110

Each

131.0000

4

4

AN5-36A

Bolt

DAS

6

9-89

DAS

27

9-89

DAS

31

9-89

Location

Loc Qty

Loc Code

over004

50

M134134

50

ST299A

1

M131957

1

ST336

78

M130466

15

M133990

63

ST399a

2

M133577

2

AN960JD516

NAS1149D0563J

Purchased

No

110

Each

0.0000

8

8

AN960JD516

Washer

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Shop Packet Print

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Work Order ID: 141237

141237

Parent Item: D209-669-014

D209-669-014

Parent Item Name: AH-1F/P/S Skidtube RH with Standard Wearplates

Start Date: 2/2/2016

Required Date: 3/14/2016

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0563J

Purchased

No

110

Each

1,350.000

8

8

NAS1149D0563.J

Washer

DAS
31
9-89

Location

Loc Qty

Loc Code

GA	53	
m125807	53	
ST260a	900	
m133769	400	
m133990	500	8
ST263	294	
m133363	94	
m133938	200	
ST269	103	
m128257	103	

DAS
27
8-89

MS21042L5

Purchased

No

110

Each

672.0000

4

4

MS21042L5

Nut

DAS
31
9-89

Location

Loc Qty

Loc Code

GA	146	
m127813	146	
ST007	400	
m134055	400	
ST303	126	
m133577	26	
m133790	100	

DAS
27
8-89

MAR 07 2016

Picklist Print

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Page 5

Work Order ID: 141237

141237

Parent Item: D209-669-014

D209-669-014

Parent Item Name: AH-1F/P/S Skidtube RH with Standard Wearplates

Start Date: 2/2/2016

Required Date: 3/14/2016

Start Qty: 1.00

Required Qty: 1.00

AN4-7A Purchased No 110 Each 137.0000 16 16

AN4-7A

Bolt

DAS
31
9-89

Location

Loc Qty

Loc Code

over003

100

m133790

100

ST325

37

m131320

37

**

DAS
6
9-89

AN960JD416 NAS1149D0463J Purchased No

AN960JD416

Washer

NAS1149D0463J

Purchased

No

110 Each 0.0000 32 32

**

NAS1149D0463J

WASHER

DAS
31
9-89

Location

Loc Qty

Loc Code

GA

397

M129390

41

M132035

356

ST260a

1999

M134039

1999

ST263

1521

M134039

1521

ST269

1349

M130799

361

M132317

100

M132677

888

**

DAS
6
9-89
MAR 07 2016

• **Picklist Print**

• February 02, 2016 11:54:48 AM

• **Work Order ID:** 141237

141237

Parent Item: D209-669-014

D209-669-014

Parent Item Name: AH-1F/P/S Skidtube RH with Standard Wearplates

Start Date: 2/2/2016

Required Date: 3/14/2016

Start Qty: 1.00

Required Qty: 1.00

D2929 Manufactured No 110 Each 77.0000 2 2

D2929

Spacer

DAS
31
9-89

Location

Loc Qty

Loc Code

Mezz

77

53564

33

84944

44

**

DAS
6
9-89

D2930 Manufactured No 110 Each 28.0000 2 2

D2930

Spacer

DAS
31
9-89

Location

Loc Qty

Loc Code

Mezz

28

53563

28

**

DAS
6
9-89

D3405-041 Manufactured No 110 Each 15.0000 1 1

D3405-041

Ground Handling Lug

DAS
31
9-89

Location

Loc Qty

Loc Code

st529

15

119182

7

136519

8

**

142443

MAR 23 2016

AN4C47A Purchased No 110 Each 28.0000 4 4

AN4C47A

Bolt

DAS
31
9-89

Location

Loc Qty

Loc Code

FG

10

122491

10

ST341

18

m132879

6

m134050

12

**

134295

DAS
6
9-89

MAR 14 2016

Picklist Print

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Work Order ID: 141237

141237

Parent Item: D209-669-014

D209-669-014

Parent Item Name: AH-1F/P/S Skidtube RH with Standard Wearplates

Start Date: 2/2/2016

Required Date: 3/14/2016

Start Qty: 1.00

Required Qty: 1.00

MS21043-4

Purchased

No

110

Each

998.0000

5

5

MS21043-4

Nut

DAS
31
9-89

Location

Loc Qty

Loc Code

FG

40

104603

40

GA

262

m132803

262

ST32

696

m133769

696

D3405-043

Manufactured

No

110

Each

14.0000

1

1

D3405-043

Ground Handling Lug

DAS
31
9-89

Location

Loc Qty

Loc Code

st529

14

119183

8

135468

3

137180

3

D3407-041

Manufactured

No

110

Each

19.0000

1

1

D3407-041

Tow Ring

DAS
31
9-89

Location

Loc Qty

Loc Code

st530

19

134755

4

137097

15

DAS
6
9-89
MAR 07 2016

DAS
6
9-89
MAR 07 2016

DAS
6
9-89
MAR 15 2016

Picklist Print

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Work Order ID: 141237

141237

Parent Item: D209-669-014

D209-669-014

Parent Item Name: AH-1F/P/S Skidtube RH with Standard Wearplates

Start Date: 2/2/2016

Required Date: 3/14/2016

Start Qty: 1.00

Required Qty: 1.00

D3456-1

Manufactured No

110

Each

119.0000

1

1

D3456-1

Washer

14125

DAS 6 9-89

DAS
31
9-89

Location

Loc Qty

Loc Code

FG

7

25701

7

ST038

112

136922

37

140756

75

D3417-5

Manufactured No

110

Each

81.0000

2

2

D3417-5

Washer

DAS
31
9-89

Location

Loc Qty

Loc Code

ST035

81

136618

3

138368

78

D3417-5RevE

Manufactured No

110

Each

0.0000

2

2

~~***D3417-5RevF***~~

Washer

NA

DAS 6 9-89

MAR 07 2016

DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D209-669 REV. B

INSTRUCTIONS:

- 1) FOR D209-669-011/-012/-013/-014 SKID TUBES @ CHANGE 003 AND SUBSEQUENT, MODIFY THE FOLLOWING:
- a) REPLACE THE D2968-041 TOW RING WITH THE D3407-041 TOW RING ASSEMBLY.
 - b) REPLACE THE D2736-1 AND D2736-3 GHW LUGS WITH THE D3405-041 AND D3405-043 LUG ASSEMBLIES.
 - c) AMEND THE PARTS LIST IN SECTION 5.0 OF INSTALLATION INSTRUCTIONS IIN-D209-669 REV. B AS SHOWN ON PAGE 2 OF THIS DSI.

NOTE: ALL INSTALLATION FASTENERS FOR THE ABOVE CHANGES HAVE BEEN UPDATED. SEE THE AMENDED PARTS LIST ON PAGE 2 FOR DETAILS.

A	NEW ISSUE	AJS	09.02.24
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED		DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9450	SHEET 1 OF 3
APPROVED		TITLE	SCALE
DE APPR.		SKIDTUBE INSTALLATIONS	NTS
DATE	09.02.24	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval 	
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
QC / QA Coordinator Approval									

Root Cause				FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : ☐					
Misidentified ☐	Past Due ☐						

5.0 PARTS LIST

ITEM	QTY -011	QTY -012	QTY -013	QTY -014	QTY -041	QTY -043	PART NUMBER	DESCRIPTION
	X						D209-669-011	SKIDTUBE INSTALLATION, LH (AH-1W/J)
		X					D209-669-012	SKIDTUBE INSTALLATION, RH (AH-1W/J)
			X				D209-669-013	SKIDTUBE INSTALLATION, LH (AH-1P/F/S)
				X			D209-669-014	SKIDTUBE INSTALLATION, RH (AH-1P/F/S)
	1	1			X		D209-669-041	REPLACEMENT SKIDTUBE (AH-1W/J)
			1	1		X	D209-669-043	REPLACEMENT SKIDTUBE (AH-1P/F/S)

IS:

50	4	4	1	1			D3405-041	LUG ASSEMBLY
51	8	8	4	4			AN4C47A	BOLT
52	16	16	8	8			D2570	BUSHING
53	8	8	4	4			MS21043-4	NUT
54			1	1			D3405-043	LUG ASSEMBLY
60	1	1	1	1			D3407-041	TOW RING ASSEMBLY
61	1	1	1	1			D3456-1	WASHER
62	1	1	1	1			MS21043-4	NUT
63	2	2	2	2			D3417-5	WASHER

WAS:

50	4	4	1	1			D2736-1	GHW LUG
51	8	8	4	4			AN4-46A	BOLT
52	16	16	8	8			D2570	BUSHING
53	8	8	4	4			MS21042L4	NUT (OR MS21042-4)
54			1	1			D2736-3	GHW LUG
60	1	1	1	1			D2968-041	TOW RING
61	1	1	1	1			AN970-4	WASHER
62	1	1	1	1			MS21042L4	NUT (OR MS21042-4)

DESIGN	AJS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED		DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9450	SHEET 2 OF 3
APPROVED		TITLE	SCALE
DE APPR.		SKIDTUBE INSTALLATIONS	NTS
DATE	09.02.24	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

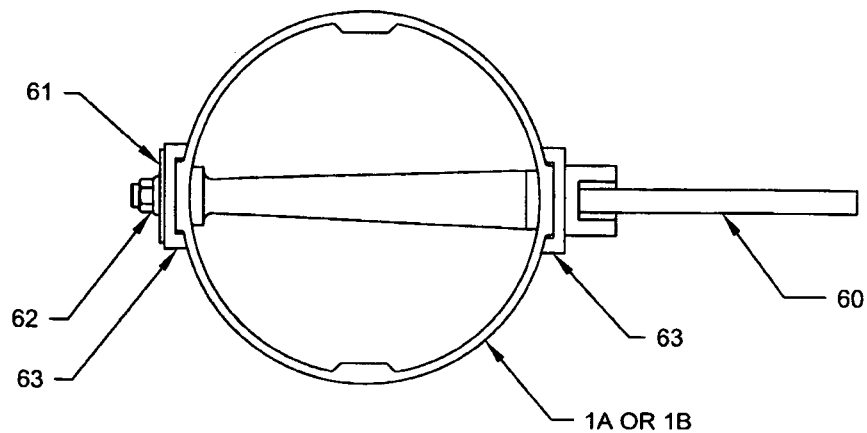
QA Closed: _____ Date: _____

Work Order update only ☐

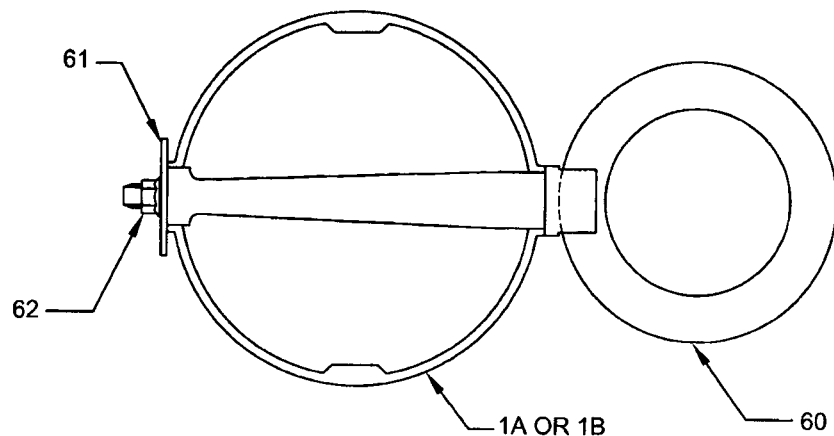
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

INSTALL TOW RING ASSEMBLY AS SHOWN BELOW (REFER TO SECTION F-F OF IIN-D209-669 REV. B.

IS:



WAS:



NO PICTORIAL CHANGE REQUIRED FOR GROUND HANDLING WHEEL LUG CHANGES.

DESIGN	AJS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED		DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9450	SHEET 3 OF 3
APPROVED		TITLE	SCALE
DE APPR.		SKIDTUBE INSTALLATIONS	NTS
DATE	09.02.24	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

DQA: _____ Date: _____

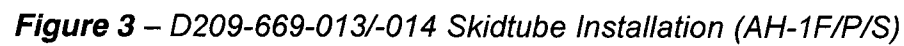


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : ☐			

Revision: **B**

Date: 07.08.23

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong				
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions				
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance				
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect				
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing				
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved				
Internal Transport ☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing				
Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish				
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread				
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence				
Past Expiry Date ☐	☐ Manufacturing Process	OTHER : _____							
Misidentified ☐	☐ Past Due								

4.0 WEIGHT AND BALANCE

The following weight and balance information is for the replacement Dart parts. The weight and balance of the skidtubes that are being removed from the aircraft is the responsibility of the installer.

Installation	Weight	LONGITUDINAL	
		Arm	Moment
D209-669-011/-012	49.6 lb	170.4 in	8452 in lb
SKIDTUBE INSTALLATION	22.5 kg	4.33 m	97.4 m kg
D209-669-013/-014	43.8 lb	176.5 in	7731 in lb
SKIDTUBE INSTALLATION	19.9 kg	4.48 m	89.2 m kg

5.0 PARTS LIST

Item	Qty -011	Qty -012	Qty -013	Qty -014	Qty -041	Qty -043	Part Number	Description
	X						D209-669-011	SKIDTUBE INSTALLATION, LH (AH-1W/J)
		X					D209-669-012	SKIDTUBE INSTALLATION, RH (AH-1W/J)
			X				D209-669-013	SKIDTUBE INSTALLATION, LH (AH-1P/F/S)
				X			D209-669-014	SKIDTUBE INSTALLATION, RH (AH-1P/F/S)
	1	1			X		D209-669-041	REPLACEMENT SKIDTUBE (AH-1W/J)
			1	1		X	D209-669-043	REPLACEMENT SKIDTUBE (AH-1P/F/S)
1A					1		D2906-041	SKIDTUBE ASSEMBLY
1B						1	D2906-043	SKIDTUBE ASSEMBLY
2	1		2				D2917-1	OUTER SADDLE (FWD, LH)
3		1		2			D2917-2	OUTER SADDLE (FWD, RH)
4	1		2				D2918-1	INNER SADDLE (FWD, LH)
5		1		2			D2918-2	INNER SADDLE (FWD, RH)
6	1						D2919-1	OUTER SADDLE (AFT, LH)
7		1					D2919-2	OUTER SADDLE (AFT, RH)
8	1						D2920-1	INNER SADDLE (AFT, LH)
9		1					D2920-2	INNER SADDLE (AFT, RH)
10	8	8	8	8			AN4-51A	BOLT
11	16	16	16	16			D2570	BUSHINGS
12	8	8	8	8			MS21042L4	NUT (OR MS21042-4)
13	2	2	4	4			AN5-36A	BOLT
14	2	2					AN5-41A	BOLT
15	8	8	8	8			AN960JD516	WASHER
16	4	4	4	4			MS21042L5	NUT (OR MS21042-5)
17	16	16	16	16			AN4-7A	BOLT
18	32	32	32	32			AN960JD416	WASHER
19	16	16	16	16			MS21042L4	NUT (OR MS21042-4)

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

20	2	2	2	2			D2929	SPACER
21	2	2	2	2			D2930	SPACER
*30A					1	1	D3564-9	WEARSHOE (REPLACES D2577-1)
*30B					1	1	D3566-1	GASKET
*31A					1		D3564-15	WEARSHOE (REPLACES 18" D2577-5)
*31B					1		D3566-15	GASKET
*32A					1	1	D3564-11	WEARSHOE (REPLACES D2577-3)
*32B					1	1	D3566-1	GASKET
*33A					1	1	D3564-5	WEARSHOE (REPLACES D2577-5)
*33B					1	1	D3566-5	GASKET
*34					50	44	AN3C4A	BOLT (REPLACES AN3-4A)
*35					50	44	AN960C10L	WASHER (REPLACES AN960JD10L)
*36					50	44	AKS7-1032-130	INSERT (OR ALS7-1032-130, OR ALS4-1032-130, OR AKS4-1032-130)
*37					12	14	D2594-1	PLUG
*38					12	14	D2594-3	O-RING
*40					2	2	D2855	AFT CAP
*41					4	4	AN3-5A	BOLT
*42					4	4	AN960JD10L	WASHER
*43					4	4	AKS7-1032-225	INSERT (OR ALS7-1032-225, OR ALS4-1032-225, OR AKS4-1032-225)
50	4	4	1	1			D2736-1	GHW LUG
51	8	8	4	4			AN4-46A	BOLT
52	16	16	8	8			D2570	BUSHING
53	8	8	4	4			MS21042L4	NUT (OR MS21042-4)
54			1	1			D2736-3	LUG ASSEMBLY
60	1	1	1	1			D2968-041	TOW RING
61	1	1	1	1			AN970-4	WASHER
62	1	1	1	1			MS21042L4	NUT (OR MS21042-4)

* DENOTES THAT PART IS INCLUDED WITH D2906-041/-043 SKIDTUBE ASSEMBLY

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Revision: B

Date: 07.08.23

5.0 PARTS LIST

ITEM	QTY -011	QTY -012	QTY -013	QTY -014	QTY -041	QTY -043	PART NUMBER	DESCRIPTION
	X						D209-669-011	SKIDTUBE INSTALLATION, LH (AH-1W/J)
		X					D209-669-012	SKIDTUBE INSTALLATION, RH (AH-1W/J)
			X				D209-669-013	SKIDTUBE INSTALLATION, LH (AH-1P/F/S)
				X			D209-669-014	SKIDTUBE INSTALLATION, RH (AH-1P/F/S)
	1	1			X		D209-669-041	REPLACEMENT SKIDTUBE (AH-1W/J)
			1	1		X	D209-669-043	REPLACEMENT SKIDTUBE (AH-1P/F/S)

IS:

50	4	4	1	1			D3405-041	LUG ASSEMBLY
51	8	8	4	4			AN4C47A	BOLT
52	16	16	8	8			D2570	BUSHING
53	8	8	4	4			MS21043-4	NUT
54			1	1			D3405-043	LUG ASSEMBLY
60	1	1	1	1			D3407-041	TOW RING ASSEMBLY
61	1	1	1	1			D3456-1	WASHER
62	1	1	1	1			MS21043-4	NUT
63	2	2	2	2			D3417-5	WASHER

WAS:

50	4	4	1	1			D2736-1	GHW LUG
51	8	8	4	4			AN4-46A	BOLT
52	16	16	8	8			D2570	BUSHING
53	8	8	4	4			MS21042L4	NUT (OR MS21042-4)
54			1	1			D2736-3	GHW LUG
60	1	1	1	1			D2968-041	TOW RING
61	1	1	1	1			AN970-4	WASHER
62	1	1	1	1			MS21042L4	NUT (OR MS21042-4)

DESIGN	AJS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	AJS	
CHECKED		DRAWING NO. REV. A
MFG. APPR.	N/A	DSI 9450 SHEET 2 OF 3
APPROVED		TITLE SCALE
DE APPR.		SKIDTUBE INSTALLATIONS NTS
DATE	09.02.24	COPYRIGHT © 2009 BY DART AEROSPACE LTD

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